



Haverhill

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April 30, 2015

Water Technical Unit (OES04-3)
U.S. EPA - New England, Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912
Attn: Joy Hilton

Massachusetts Department of Environmental Protection
Northeast Regional Office
Bureau of Resource Protection
205B Lowell Street
Wilmington, MA 01887
Attn: Nihar Mohanty

Subject: City of Haverhill, MA NPDES Permit # **MA 0101621**
Combined Sewer Overflow Annual Report 2014

Dear Ms. Hilton and Mr. Mohanty:

In accordance with Part I.D.3. of the City of Haverhill's NPDES Permit, we are providing this annual report for the 2014 calendar year. Please note that throughout this report the items in *italics* are the requirements taken directly from the NPDES permit followed by the response.

- a. Activation frequency and discharge volume for each CSO during the previous calendar year. The report shall include this information for each of the CSO discharge outfalls listed on attachment F.*

The SWMM model approved in 1998 and updated in August 2011 by Administrative Order 08-012, was used to report the CSO discharge volumes.

The City's consultant CDM Smith and sub-contractor Flow Assessment has installed CSO Flow meters throughout the City's collection system. Flow Assessment provides necessary maintenance on all CSO flow meters throughout the year. These flow meters are accessible through the internet with user ID and passwords.

Each flow meter is queried to obtain 5-minute records, exported to Excel, and remove all non-reporting times. Every CSO meter is recorded in this manner and has its own separate tab in Excel. CSO volumes are created for each CSO Flow meter recording, see **Appendix A CSO FLOW METER SUMMARY 2014**.

Appendix B CSO FLOW METER SUMMARY PER OUTFALL 2014 was developed utilizing the data from Appendix A that totals each outfall.

Rain data is collected at the City of Haverhill Wastewater Treatment Plant using a RainWise, Inc., rain gage. The rain is measured in 15-minute intervals to within 0.01 inches. NetStorm utilizes the rain gauge information and develops rainfall statistics per storm event. See

- b. Precipitation during the previous year for each day, including total rainfall (expressed in inches), peak intensity (highest 15 minute sample multiplied by four to convert to inches per hour), and average intensity (the total rainfall for the storm event divided by the duration of the storm, expressed in inches per hour).*

APPENDIX C: CALENDAR YEAR 2014 RAINFALL DATA utilizing NetStorm. (Note some storm duration last longer than one day for an example 5-29-14 lasted for 43 hours). The City received 45.29 inches of rainfall for calendar year 2014. The average rainfall amount is 42.91 inches.

- c. A certification, which states that the previous calendar's year's monthly inspections were conducted, results recorded, and records maintained.*

I certify that the City of Haverhill inspects and maintains pertinent electronic records contain within the City's CMMS MaintStar Program for all CSOs at least monthly.

The City stopped its block checking program in July 2014, and notified EPA through an email. Block checks that were done can be observed in **APPENDIX D: CALENDAR YEAR 2014 CSO BLOCK CHECK RESULTS** in accordance with Part I D.2.b.

- d. A summary of modifications to the approved NMC programs which have been evaluated, and a description of those, which will be implemented during the upcoming year.*

The City of Haverhill minimizes CSO discharges to the maximum extent possible through implementation of the Draft Nine Minimum Controls report submitted to EPA in September 1996. The Phase II LTCP identified several CSO regulators that will be modified (raising weirs) to further minimize CSO discharges.

In the first annual report submitted in accordance with this permit, the permittee shall submit a public notification plan to describe the measures actively being taken to meet NMC #9 (see NMC #9 in part I.C.1a.i.8), and an evaluation of future measures to enhance the public notification program, including the following;

- i. Outfall sign visible from both water and land.*

Signs have been installed at each CSO location in the City and will be maintained over the coming year. See **Appendix E: Work Order 41209** verifying that all CSO signage is posted. Please note that CSO signage is removed for any CSOs that were permanently closed in 2013. The closed CSOs are Bates (#001), Boardman (#010), Fire Station (#016), Railroad Bridge (022), 266 River Street (023), Front Street (031), South Prospect (033), Main St. South (035), and Ferry Street (036). Beach Street (#025) was closed in 2014.

ii. *Sign/Notices are where people may be using CSO-impacted waters for recreation such as swimming, boating, fishing, and places where the public may gain access to the water (e.g. boat put-in areas). The notice would include information on health risk posed by CSO and links for additional information on CSOs and water quality.*

Within 24-hours of a CSO occurrence an email notification is sent to Downstream Communities see **APPENDIX F: DOWNSTREAM COMMUNITIES** for the email notification list.

The City's Public Notification Program, (required by the NMC), consists of public education about CSO discharges and their impacts. "Real-Time" notification of the receiving water impacts or use restrictions during the activation of the CSO discharge is not feasible (due to its transient and intermittent occurrences). Accordingly, the City relies on a general education program and the City's official web site to keep the public aware of the possible health risks.

The address below is the City's CSO web site:

http://www.ci.haverhill.ma.us/departments/public_works_department/water_wastewater/wastewater/wastewater_collection_system/combined_sewer_overflows_%28cso%29/index.php

iii. *Review of the sewer system model to determine the threshold rain events, which normally will cause overflows.*

The City has compiled all block check results and plotted these results with available Supervisory Control and Data Acquisition (SCADA) influent flows along with available rainfall data from 2008 through 2010; found that when the City receives 0.10 inches of rain the City could expect a CSO occurrence. However, due to the City's effort to close ten (10) CSOs and raise the weirs of five (5) CSOs data is not yet available to accurately report the minimum rain level creates CSO activations.

Table 1 below represents all CSOs that were closed and all CSOs weirs that were raised along with the date of the work. This was recommended in the Table 6-1 and 6-2 from the previous submitted CSO LTCP August 2011.

| | CLOSED DATE | Old Weir Elev. | New Weir Elev. | Amount Raised (ft) | NPDES # | Amount Raised (ft) | Date Raised | Final Elev. |
|------------------------------|--------------------|-----------------------|-----------------------|---------------------------|----------------|---------------------------|--------------------|--------------------|
| HAVERHILL SIDE | | | | | | | | |
| LOWER SIPHON CSO | | | | | | | | |
| BATES | 7/24/2013 | 9.4 | 9.4 | 0 | 001 | | | |
| BOARDMAN | 8/14/2013 | 9.3 | 9.3 | 0 | 010 | | | |
| LOWER SIPHON | | 1 | 1 | 0 | 013 | 3 | 6/26/2014 | 4 |
| FIRE STATION | 8/7/2013 | 13.5 | 13.5 | 0 | 016 | | | |
| MAIN ST NORTH | | 19.3 | 19.3 | 0 | 019 | | | |
| Bethany Avenue | | | | | 040 | | | |
| Chestnut Street | | | | | 041 | | | |
| MIDDLE SIPHON CSO | | | | | | | | |
| LITTLE RIVER NORTH 12-INCH | | 9.25 | 11.77 | 2.52 | 021D | | | |
| LITTLE RIVER SOUTH 18-INCH | | 9 | 9.8 | 0.8 | 021E | 2.08 | 3/19/2014 | 11.08 |
| Center Barrell Locke Street) | | 12.92 | 12.92 | 0 | 021F | 1.17 | 3/11/2014 | 14.09 |
| MIDDLE SIPHON | | 6.2 | 7.7 | 1.5 | 021A | | | |
| Emerson Street | | | | | 021B | | | |
| Essex Street Eliminated | | | | | 021C | | | |
| WINTER ST | | 27.02 | 27.02 | 0 | 21H | | | |
| BROADWAY DIVERSIONAL | | 35.77 | 35.77 | 0 | 038 | | | |
| HIGH ST DIVERSIONAL | | 28.32 | 28.32 | 0 | 038 | | | |
| WINTER AND HALE | | 17.9 | 18.6 | 0 | 21H | | | |
| UPPER SIPHON CSO | | | | | | | | |
| RAILROAD BRIDGE | 3/31/2012 | 26.4 | 26.4 | 0 | 022 | | | |
| 266 RIVER STREET | 8/14/2013 | 15 | 15 | 0 | 023 | | | |
| BEACH STREET | 3/19/2014 | 15.5 | 15.5 | 0 | 025 | | | |
| UPPER SIPHON | | 9.65 | 11.32 | 1.67 | 024 | 2.25 | 6/23/2014 | 11.9 |
| BRADFORD SIDE | | | | | | | | |
| FRONT STREET | 7/10/2013 | 14.25 | 15.58 | 1.33 | 031 | | | |
| BRADFORD AVE | | 11 | 12.75 | 1.75 | 032 | 4.99 | 6/25/2014 | 15.99 |
| SOUTH PROSPECT | 7/19/2013 | 11.48 | 12 | 0.52 | 033 | | | |
| South Webster Street | | | | | 039 | | | |
| Colby Street Regulator | | | | | 039 | | | |
| MIDDLESEX STREET | | 6.48 | 8.56 | 2.08 | 034 | | | |
| MAIN ST SOUTH | 7/31/2013 | 8.21 | 10.38 | 2.17 | 035 | | | |
| FERRY STREET | 8/5/2013 | 5.75 | 8 | 2.25 | 036 | | | |

iv. Quarterly postings on the permittee's website and links to other relevant web-sites which would give the locations of the CSOs, and associated health risks and estimate of CSO activations and volumes. The permittee shall update the CSO website within two (2) months of the effective date of the permit.

The City of Haverhill's official CSO web site is
http://www.ci.haverhill.ma.us/departments/public_works_department/water_wastewater/wastewater/wastewater_collection_system/combined_sewer_overflows_%28cso%29/index.php

- v. *Annual press release and notification to interested individuals and groups on the progress of the CSO abatement work, also noting contacts for additional information on CSOs and water quality.*

The City contacts downstream communities for each CSO activation. When other interested individuals are identified, this notification will be sent to them.

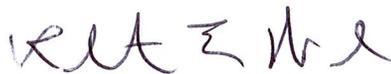
- vi. *Notice to local health agents and other downstream public officials, including drinking water treatment plants (where appropriate), shellfish wardens, harbor masters, and the Massachusetts Division of Marine Fisheries (via FAX at 617-727-3337) or via telephone (978-282-0308 extension 160) within 24 hours of activation of CSOs. The permittee shall also notify the Massachusetts Divisions of Marine Fisheries by the same method if the treatment plant discharges effluent without disinfection. When City of Haverhill staff is unavailable to confirm an actual discharge from a CSO during a significant precipitation event, the permittee shall report the probable occurrence of a CSO discharge in the same manner. Subsequently, the occurrence of the CSO discharge event shall be confirmed or dispelled as staff becomes available. The planned notice distribution contact list shall be provided to EPA and DEP.*

The public notification plan shall include a schedule for implementation of enhanced public notice measures.

APPENDIX F: DOWNSTREAM COMMUNITIES represents the list of the current email addresses notified for Calendar 2014.

If you require additional information, please contact me at 978-374-2382 or Paul Jessel call pjessel@haverhillwater.com.

Sincerely,



Robert Ward, Deputy DPW Director
Water/Wastewater

cc: Mike Stankovich, DPW Director
Paul Jessel, Collection System Supervisor
Fred Haffty WWTP Facility Manager
James Drake, CDM

APPENDIX D: CALENDAR YEAR 2014 CSO BLOCK CHECK RESULTS.

| Date | Rainfall (in./day) | Peak Intensity (hr.) | LOWER SIPHON NPDES 013 | MAIN ST NORTH NPDES 019 | Emerson Street NPDES 021B | MIDDLE SIPHON NPDES 21-A | LITTLE RIVER NORTH 12-INCH NPDES 21-D | LITTLE RIVER SOUTH 18-INCH NPDES 21-E | CENTER BARREL RADIO MARKET NPDES 21-F | WINTER ST NPDES 21-G | WINTER AND HALE NPDES 21-H | UPPER SIPHON NPDES 024 | BROADWAY DIVERSIONAL NPDES 037 | HIGH ST DIVERSIONAL NPDES 038 | Bethany Street NPDES 040 | Chestnut Street NPDES 041 | BRADFORD AVE NPDES 032 | MIDDLESEX STREET NPDES 034 | Colby St & Salem Regulator NPDES 042 | South Webster CSO NPDES 039 |
|--|--------------------|----------------------|------------------------|-------------------------|---------------------------|--------------------------|---------------------------------------|---------------------------------------|---------------------------------------|----------------------|----------------------------|------------------------|--------------------------------|-------------------------------|--------------------------|---------------------------|------------------------|----------------------------|--------------------------------------|-----------------------------|
| Red Indicates CSO Flow meter respond but block was recorded as on | | | | | | | | | | | | | | | | | | | | |
| 1/1/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/2/2014 | 0.32 | 0.05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/3/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/4/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/5/2014 | 0.02 | 0.02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/6/2014 | 0.60 | 0.15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/7/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1/8/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/9/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/10/2014 | 0.09 | 0.03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/11/2014 | 0.08 | 0.03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/12/2014 | 0.30 | 0.08 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1/13/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/14/2014 | 0.78 | 0.12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/15/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 1/16/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/17/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/18/2014 | 0.63 | 0.16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/19/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/20/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/21/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/22/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/23/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/24/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/25/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/26/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/27/2014 | 0.01 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/28/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/29/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/30/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1/31/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/1/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/2/2014 | 0.08 | 0.06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/3/2014 | 0.01 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/4/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/5/2014 | 0.96 | 0.18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/6/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/7/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/8/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/9/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/10/2014 | 0.03 | 0.02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/11/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/12/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/13/2014 | 1.46 | 0.23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/14/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/15/2014 | 0.24 | 0.05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/16/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/17/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/18/2014 | 0.56 | 0.14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/19/2014 | 0.20 | 0.14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/20/2014 | 0.80 | 0.16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

APPENDIX D: CALENDAR YEAR 2014 CSO BLOCK CHECK RESULTS.

| Date | Rainfall (in.)/day | Peak Intensity (hr.) | LOWER SIPHON NPDES 013 | MAIN ST NORTH NPDES 019 | Emerson Street NPDES 021B | MIDDLE SIPHON NPDES 21-A | LITTLE RIVER NORTH 12-INCH NPDES 21-D | LITTLE RIVER SOUTH 18-INCH NPDES 21-E | CENTER BARREL RADIO MARKET NPDES 21-F | WINTER ST NPDES 21-G | WINTER AND HALE NPDES 21-H | UPPER SIPHON NPDES 024 | BROADWAY DIVERSIONAL NPDES 037 | HIGH ST DIVERSIONAL NPDES 038 | Bethany Street NPDES 040 | Chestnut Street NPDES 041 | BRADFORD AVE NPDES 032 | MIDDLESEX STREET NPDES 034 | Colby St & Salem Regulator NPDES 042 | South Webster CSO NPDES 039 |
|-----------|--------------------|----------------------|------------------------|-------------------------|---------------------------|--------------------------|---------------------------------------|---------------------------------------|---------------------------------------|----------------------|----------------------------|------------------------|--------------------------------|-------------------------------|--------------------------|---------------------------|------------------------|----------------------------|--------------------------------------|-----------------------------|
| 2/21/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 2/22/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/23/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/24/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/25/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/26/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/27/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2/28/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/1/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/2/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/3/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/4/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/5/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/6/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/7/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/8/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/9/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/10/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/11/2014 | 0.01 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/12/2014 | 0.52 | 0.14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/13/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 3/14/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/15/2014 | 0.01 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/16/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/17/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/18/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/19/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/20/2014 | 0.58 | 0.19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/21/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/22/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/23/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/24/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/25/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/26/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/27/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/28/2014 | 0.04 | 0.02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/29/2014 | 3.46 | 0.37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/30/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3/31/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| 4/1/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/2/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/3/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/4/2014 | 0.41 | 0.11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/5/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/6/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/7/2014 | 0.58 | 0.19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/8/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/9/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/10/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/11/2014 | 0.07 | 0.03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/12/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/13/2014 | 0.01 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/14/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

APPENDIX D: CALENDAR YEAR 2014 CSO BLOCK CHECK RESULTS.

| Date | Rainfall (in.)/day | Peak Intensity (hr.) | LOWER SIPHON NPDES 013 | MAIN ST NORTH NPDES 019 | Emerson Street NPDES 021B | MIDDLE SIPHON NPDES 21-A | LITTLE RIVER NORTH 12-INCH NPDES 21-D | LITTLE RIVER SOUTH 18-INCH NPDES 21-E | CENTER BARREL RADIO MARKET NPDES 21-F | WINTER ST NPDES 21-G | WINTER AND HALE NPDES 21-H | UPPER SIPHON NPDES 024 | BROADWAY DIVERSIONAL NPDES 037 | HIGH ST DIVERSIONAL NPDES 038 | Bethany Street NPDES 040 | Chestnut Street NPDES 041 | BRADFORD AVE NPDES 032 | MIDDLESEX STREET NPDES 034 | Colby St & Salem Regulator NPDES 042 | South Webster CSO NPDES 039 |
|-----------|--------------------|----------------------|------------------------|-------------------------|---------------------------|--------------------------|---------------------------------------|---------------------------------------|---------------------------------------|----------------------|----------------------------|------------------------|--------------------------------|-------------------------------|--------------------------|---------------------------|------------------------|----------------------------|--------------------------------------|-----------------------------|
| 4/15/2014 | 0.74 | 0.15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/16/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/17/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/18/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/19/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/20/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/21/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/22/2014 | 0.02 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/23/2014 | 0.57 | 0.25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/24/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 4/25/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/26/2014 | 0.20 | 0.06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/27/2014 | 0.10 | 0.05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/28/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/29/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4/30/2014 | 0.03 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/1/2014 | 0.86 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/2/2014 | 0.18 | 0.14 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 |
| 5/3/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/4/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/5/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/6/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/7/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/8/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/9/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/10/2014 | 0.08 | 0.04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/11/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/12/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/13/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/14/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/15/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/16/2014 | 0.21 | 0.13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/17/2014 | 0.57 | 0.31 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 5/18/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/19/2014 | 0.14 | 0.05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/20/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/21/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/22/2014 | 0.07 | 0.03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/23/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/24/2014 | 0.06 | 0.06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/25/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/26/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/27/2014 | 0.52 | 0.17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/28/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/29/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/30/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5/31/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/1/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/2/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/3/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/4/2014 | 0.01 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/5/2014 | 0.41 | 0.10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/6/2014 | 0.01 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

APPENDIX D: CALENDAR YEAR 2014 CSO BLOCK CHECK RESULTS.

| Date | Rainfall (in.)/day | Peak Intensity (hr.) | LOWER SIPHON NPDES 013 | MAIN ST NORTH NPDES 019 | Emerson Street NPDES 021B | MIDDLE SIPHON NPDES 21-A | LITTLE RIVER NORTH 12-INCH NPDES 21-D | LITTLE RIVER SOUTH 18-INCH NPDES 21-E | CENTER BARREL RADIO MARKET NPDES 21-F | WINTER ST NPDES 21-G | WINTER AND HALE NPDES 21-H | UPPER SIPHON NPDES 024 | BROADWAY DIVERSIONAL NPDES 037 | HIGH ST DIVERSIONAL NPDES 038 | Bethany Street NPDES 040 | Chestnut Street NPDES 041 | BRADFORD AVE NPDES 032 | MIDDLESEX STREET NPDES 034 | Colby St & Salem Regulator NPDES 042 | South Webster CSO NPDES 039 |
|-----------|--------------------|----------------------|------------------------|-------------------------|---------------------------|--------------------------|---------------------------------------|---------------------------------------|---------------------------------------|----------------------|----------------------------|------------------------|--------------------------------|-------------------------------|--------------------------|---------------------------|------------------------|----------------------------|--------------------------------------|-----------------------------|
| 6/7/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/8/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/9/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/10/2014 | 0.01 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/11/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/12/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/13/2014 | 0.70 | 0.20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 6/14/2014 | 0.00 | 0.00 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 |
| 6/15/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/16/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/17/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/18/2014 | 0.01 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/19/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/20/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/21/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/22/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/23/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/24/2014 | 0.05 | 0.05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/25/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/26/2014 | 0.49 | 0.25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| 6/27/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/28/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/29/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6/30/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7/1/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7/2/2014 | 0.01 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7/3/2014 | 0.72 | 0.32 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 |
| 7/4/2014 | 1.70 | 0.08 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7/5/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| 7/6/2014 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Appendix B CSO FLOW METER SUMMARY 2014

QA/QC flow
Assessmnt

| NPDES ID | CSO Identification | Start Date Time | End Date Time | Total Vol (gals.)/event | CSO Duration (hr.) | Rain Total (in.) | Peak Hour Depth Intensity (in./hr.) | Storm Duration (hr.) | Daily Avg. Intensity (in./hr.) |
|--------------------|-------------------------------------|-----------------|-----------------|-------------------------|--------------------|------------------|-------------------------------------|----------------------|--------------------------------|
| 021F | Middle Barrel Radio Market | 3/20/2014 1:00 | 3/20/2014 4:00 | 115,055 | 3.00 | 0.57 | 0.19 | 5.75 | 0.10 |
| Storm Total | | | | 115,055 | | | | | |
| 039 | South Webster Street | | 3/30/2014 0:00 | 25,962 | | | | | |
| 034 | Middlesex Street | | 3/30/2014 6:45 | 2,104 | 0.08 | 3.46 | 0.37 | 43.50 | 0.08 |
| 021A | Middle Siphon | 3/30/2014 5:45 | 3/30/2014 7:15 | 88,647 | 1.50 | 3.46 | 0.37 | 43.50 | 0.08 |
| 021D | Locke Street South (12-inch siphon) | 3/30/2014 2:45 | 3/30/2014 18:15 | 15,886 | 15.50 | 3.46 | 0.37 | 43.50 | 0.08 |
| 021F | Middle Barrel Radio Market | 3/30/2014 2:30 | 3/30/2014 22:45 | 1,659,917 | 20.50 | 3.46 | 0.37 | 43.50 | 0.08 |
| Storm Total | | | | 1,792,515 | | | | | |
| 021D | Locke Street South (12-inch siphon) | 3/31/2014 0:00 | 3/31/2014 1:45 | 12,574 | 1.75 | 3.46 | 0.37 | 43.50 | 0.08 |
| 034 | Middlesex Street | 3/31/2014 2:15 | 3/31/2014 3:00 | 64,152 | 0.75 | 3.46 | 0.37 | 43.50 | 0.08 |
| 039 | South Webster Street | 3/31/2014 1:30 | 3/31/2014 3:30 | 25,393 | 2.00 | 3.46 | 0.37 | 43.50 | 0.08 |
| 021A | Middle Siphon | 3/31/2014 1:45 | 3/31/2014 4:15 | 1,060,424 | 2.50 | 3.46 | 0.37 | 43.50 | 0.08 |
| 021F | Middle Barrel Radio Market | 3/31/2014 0:15 | 3/31/2014 12:15 | 1,180,816 | 12.00 | 3.46 | 0.37 | 43.50 | 0.08 |
| Storm Total | | | | 2,343,359 | | | | | |
| 021F | Middle Barrel Radio Market | | 4/5/2014 2:30 | 7,626 | 0.08 | 0.41 | 0.11 | 7.25 | 0.06 |
| Storm Total | | | | 7,626 | | | | | |
| 021F | Middle Barrel Radio Market | | 4/8/2014 6:30 | 1,514 | 0.08 | 0.58 | 0.19 | 5.75 | 0.10 |
| Storm Total | | | | 1,514 | | | | | |
| 021F | Middle Barrel Radio Market | 4/15/2014 22:15 | 4/15/2014 22:30 | 8,677 | 0.25 | 0.74 | 0.15 | 15.25 | 0.05 |
| Storm Total | | | | 8,677 | | | | | |
| 021D | Locke Street South (12-inch siphon) | 4/23/2014 9:30 | 4/23/2014 11:30 | 9,302 | 2.00 | 0.57 | 0.25 | 3.25 | 0.18 |
| 032 | Bradford Avenue | 4/23/2014 9:15 | 4/23/2014 11:45 | 135,300 | 2.50 | 0.57 | 0.25 | 3.25 | 0.18 |
| 021F | Middle Barrel Radio Market | 4/23/2014 9:30 | 4/23/2014 12:00 | 147,992 | 2.30 | 0.57 | 0.25 | 3.25 | 0.18 |
| Storm Total | | | | 292,594 | | | | | |
| 021E | Locke Street South (18-inch siphon) | 4/24/2014 10:45 | 4/24/2014 11:15 | 2,583 | 0.50 | 0.86 | 0.01 | 15.25 | 0.06 |
| Storm Total | | | | 2,583 | | | | | |
| 021D | Locke Street South (12-inch siphon) | | 5/1/2014 21:15 | 5,032 | 0.08 | 0.86 | 0.01 | 15.25 | 0.06 |
| 041 | Chestnut Street | | 5/1/2014 21:15 | 24,908 | 0.08 | 0.86 | 0.01 | 15.25 | 0.06 |
| 021F | Middle Barrel Radio Market | 5/1/2014 4:30 | 5/1/2014 21:30 | 77,872 | 17.00 | 0.86 | 0.01 | 15.25 | 0.06 |
| 032 | Bradford Avenue | 5/1/2014 6:15 | 5/1/2014 21:30 | 62,181 | 15.25 | 0.86 | 0.01 | 15.25 | 0.06 |
| Storm Total | | | | 169,994 | | | | | |
| 021F | Middle Barrel Radio Market | 5/16/2014 19:45 | 5/16/2014 20:00 | 9,031 | 0.25 | 0.21 | 0.13 | 6.50 | 0.03 |
| 032 | Bradford Avenue | 5/16/2014 19:45 | 5/16/2014 20:00 | 16,009 | 0.25 | 0.21 | 0.13 | 6.50 | 0.03 |
| Storm Total | | | | 25,040 | | | | | |
| 021G | Winter street | | 5/17/2014 0:00 | 3,825 | 0.08 | 0.57 | 0.31 | 2.75 | 0.21 |
| 040 | Bethany Avenue | | 5/17/2014 0:00 | 23,830 | 0.08 | 0.57 | 0.31 | 2.75 | 0.21 |
| 021A | Middle Siphon | | 5/17/2014 6:00 | 383 | 0.08 | 0.57 | 0.31 | 2.75 | 0.21 |
| 034 | Middlesex Street | | 5/17/2014 6:00 | 33,689 | 0.08 | 0.57 | 0.31 | 2.75 | 0.21 |
| 041 | Chestnut Street | | 5/17/2014 6:00 | 76,083 | 0.08 | 0.57 | 0.31 | 2.75 | 0.21 |
| 021D | Locke Street South (12-inch siphon) | 5/17/2014 4:30 | 5/17/2014 6:15 | 26,560 | 1.75 | 0.57 | 0.31 | 2.75 | 0.21 |
| 021H | Winter and Hale | 5/17/2014 4:30 | 5/17/2014 6:15 | 34,317 | 1.75 | 0.57 | 0.31 | 2.75 | 0.21 |
| 039 | South Webster Street | 5/17/2014 6:00 | 5/17/2014 6:15 | 11,281 | 0.25 | 0.57 | 0.31 | 2.75 | 0.21 |
| 024 | Upper siphon | 5/17/2014 6:00 | 5/17/2014 6:30 | 177,547 | 0.50 | 0.57 | 0.31 | 2.75 | 0.21 |
| 032 | Bradford Avenue | 5/17/2014 4:30 | 5/17/2014 6:45 | 223,682 | 2.25 | 0.57 | 0.31 | 2.75 | 0.21 |
| 021F | Middle Barrel Radio Market | 5/17/2014 4:30 | 5/17/2014 7:00 | 214,485 | 2.50 | 0.57 | 0.31 | 2.75 | 0.21 |
| 013 | Lower Siphon | 5/17/2014 6:15 | 5/17/2014 8:00 | 292,158 | 1.75 | 0.57 | 0.31 | 2.75 | 0.21 |
| Storm Total | | | | 1,117,840 | | | | | |
| 021F | Middle Barrel Radio Market | 5/27/2014 19:15 | 5/27/2014 19:30 | 7,706 | 0.25 | 0.52 | 0.17 | 15.25 | 0.03 |
| Storm Total | | | | 7,706 | | | | | |
| 021D | Locke Street South (12-inch siphon) | | 5/28/2014 8:00 | 356 | 0.25 | 0.52 | 0.17 | 15.25 | 0.03 |
| 021F | Middle Barrel Radio Market | 5/28/2014 8:00 | 5/28/2014 8:15 | 18,754 | 0.25 | 0.52 | 0.17 | 15.25 | 0.03 |
| 032 | Bradford Avenue | 5/28/2014 8:00 | 5/28/2014 8:15 | 38,320 | 0.25 | 0.52 | 0.17 | 15.25 | 0.03 |
| Storm Total | | | | 57,430 | | | | | |

Appendix B CSO FLOW METER SUMMARY 2014

QA/QC flow
Assessmnt

| NPDES ID | CSO Identification | Start Date Time | End Date Time | Total Vol (gals.)/event | CSO Duration (hr.) | Rain Total (in.) | Peak Hour Depth Intensity (in./hr.) | Storm Duration (hr.) | Daily Avg. Intensity (in./hr.) |
|--------------------|-------------------------------------|-----------------|-----------------|-------------------------|--------------------|------------------|-------------------------------------|----------------------|--------------------------------|
| 021F | Middle Barrel Radio Market | | 6/5/2014 14:45 | 5,135 | 0.08 | 0.41 | 0.10 | 9.50 | 0.04 |
| Storm Total | | | | 5,135 | | | | | |
| 021G | Winter street | | 6/13/2014 0:00 | 20,252 | 0.08 | | | | |
| 021A | Middle Siphon | 6/13/2014 10:20 | 6/13/2014 10:30 | 5,228 | 0.17 | 0.57 | 0.31 | 2.75 | 0.21 |
| 034 | Middlesex Street | 6/13/2014 10:10 | 6/13/2014 10:30 | 58,364 | 0.33 | 0.70 | 0.20 | 15.25 | 0.05 |
| 040 | Bethany Avenue | 6/13/2014 10:10 | 6/13/2014 10:30 | 37,869 | 0.33 | 0.70 | 0.20 | 15.25 | 0.05 |
| 041 | Chestnut Street | 6/13/2014 10:15 | 6/13/2014 10:30 | 55,311 | 0.25 | 0.70 | 0.20 | 15.25 | 0.05 |
| 032 | Bradford Avenue | 6/13/2014 10:10 | 6/13/2014 10:35 | 193,969 | 0.42 | 0.70 | 0.20 | 15.25 | 0.05 |
| 039 | South Webster Street | 6/13/2014 10:20 | 6/13/2014 10:35 | 18,146 | 0.25 | 0.70 | 0.20 | 15.25 | 0.05 |
| 021H | Winter and Hale | 6/13/2014 10:15 | 6/13/2014 10:40 | 74,294 | 0.42 | 0.70 | 0.20 | 15.25 | 0.05 |
| 024 | Upper siphon | 6/13/2014 10:20 | 6/13/2014 10:40 | 287,731 | 0.33 | 0.70 | 0.20 | 15.25 | 0.05 |
| 021F | Middle Barrel Radio Market | 6/13/2014 10:15 | 6/13/2014 10:55 | 157,718 | 0.67 | 0.70 | 0.20 | 15.25 | 0.05 |
| 021D | Locke Street South (12-inch siphon) | 6/13/2014 10:05 | 6/13/2014 11:00 | 39,537 | 0.92 | 0.70 | 0.20 | 15.25 | 0.05 |
| 013 | Lower Siphon | 6/13/2014 10:40 | 6/13/2014 12:10 | 266,310 | 1.50 | 0.70 | 0.20 | 15.25 | 0.05 |
| Storm Total | | | | 1,214,729 | | | | | |
| 040 | Bethany Avenue | | 6/26/2014 1:25 | 2,774 | 0.08 | 0.49 | 0.25 | 4.75 | 0.10 |
| 041 | Chestnut Street | | 6/26/2014 1:25 | 737 | 0.08 | 0.49 | 0.25 | 4.75 | 0.10 |
| 021F | Middle Barrel Radio Market | 6/26/2014 1:30 | 6/26/2014 2:10 | 71,091 | 0.67 | 0.49 | 0.25 | 4.75 | 0.10 |
| 039 | South Webster Street | 6/26/2014 1:40 | 6/26/2014 3:50 | 4,288 | 2.17 | 0.49 | 0.25 | 4.75 | 0.10 |
| 021D | Locke Street South (12-inch siphon) | 6/26/2014 1:20 | 6/26/2014 5:30 | 346,011 | 4.17 | 0.49 | 0.25 | 4.75 | 0.10 |
| Storm Total | | | | 424,901 | | | | | |
| 021G | Winter street | 7/3/2014 22:15 | 7/3/2014 22:15 | 34,375 | 0.08 | 0.72 | 0.32 | 7.00 | 0.10 |
| 034 | Middlesex Street | 7/3/2014 16:45 | 7/3/2014 22:20 | 75,717 | 5.58 | 0.72 | 0.32 | 7.00 | 0.10 |
| 040 | Bethany Avenue | 7/3/2014 16:45 | 7/3/2014 22:20 | 66,532 | 5.58 | 0.72 | 0.32 | 7.00 | 0.10 |
| 041 | Chestnut Street | 7/3/2014 16:45 | 7/3/2014 22:20 | 21,346 | 5.58 | 0.72 | 0.32 | 7.00 | 0.10 |
| 021A | Middle Siphon | 7/3/2014 22:15 | 7/3/2014 22:25 | 61,193 | 0.17 | 0.72 | 0.32 | 7.00 | 0.10 |
| 024 | Upper siphon | 7/3/2014 22:20 | 7/3/2014 22:25 | 27,464 | 0.08 | 0.72 | 0.32 | 7.00 | 0.10 |
| 021H | Winter and Hale | 7/3/2014 17:00 | 7/3/2014 22:30 | 104,500 | 5.50 | 0.72 | 0.32 | 7.00 | 0.10 |
| 039 | South Webster Street | 7/3/2014 16:50 | 7/3/2014 22:30 | 9,264 | 5.67 | 0.72 | 0.32 | 7.00 | 0.10 |
| 021F | Middle Barrel Radio Market | 7/3/2014 16:55 | 7/3/2014 22:40 | 169,816 | 5.75 | 0.72 | 0.32 | 7.00 | 0.10 |
| 021D | Locke Street South (12-inch siphon) | 7/3/2014 16:45 | 7/3/2014 22:45 | 76,472 | 6.00 | 0.72 | 0.32 | 7.00 | 0.10 |
| Storm Total | | | | 646,679 | | | | | |

Appendix B CSO FLOW METER SUMMARY 2014

QA/QC flow
Assessmnt

| NPDES ID | CSO Identification | Start Date Time | End Date Time | Total Vol (gals.)/event | CSO Duration (hr.) | Rain Total (in.) | Peak Hour Depth Intensity (in./hr.) | Storm Duration (hr.) | Daily Avg. Intensity (in./hr.) |
|--------------------|-------------------------------------|-----------------|-----------------|-------------------------|--------------------|------------------|-------------------------------------|----------------------|--------------------------------|
| 040 | Bethany Avenue | | 7/4/2014 20:00 | 2,687 | 0.08 | 1.70 | 0.08 | 19.25 | 0.09 |
| 021F | Middle Barrel Radio Market | 7/4/2014 17:20 | 7/4/2014 22:25 | 60,033 | 5.08 | 1.70 | 0.08 | 19.25 | 0.09 |
| 021D | Locke Street South (12-inch siphon) | 7/4/2014 15:15 | 7/4/2014 23:25 | 71,134 | 8.17 | 1.70 | 0.08 | 19.25 | 0.09 |
| Storm Total | | | | 133,854 | | | | | |
| 021D | Locke Street South (12-inch siphon) | | 7/5/2014 1:30 | 522 | 0.08 | 1.70 | 0.08 | 19.25 | 0.09 |
| 021D | Locke Street South (12-inch siphon) | 7/5/2014 5:35 | 7/5/2014 5:40 | 522 | 0.08 | 1.70 | 0.08 | 19.25 | 0.09 |
| Storm Total | | | | 1,044 | | | | | |
| 021D | Locke Street South (12-inch siphon) | 7/9/2014 22:55 | 7/9/2014 23:00 | 1,658 | 0.08 | 0.13 | 0.12 | 0.50 | 0.26 |
| 038 | High Street | | 7/15/2014 15:50 | 6,972 | 0.08 | 1.21 | 0.74 | 7.75 | 0.16 |
| 021B | Emerson Street | 7/15/2014 15:50 | 7/15/2014 15:55 | 22,105 | 0.08 | 1.21 | 0.74 | 7.75 | 0.16 |
| 021G | Winter street | 7/15/2014 15:50 | 7/15/2014 16:10 | 215,563 | 0.33 | 1.21 | 0.74 | 7.75 | 0.16 |
| 040 | Bethany Avenue | 7/15/2014 15:45 | 7/15/2014 16:10 | 169,937 | 0.42 | 1.21 | 0.74 | 7.75 | 0.16 |
| 041 | Chestnut Street | 7/15/2014 15:45 | 7/15/2014 16:10 | 49,386 | 0.42 | 1.21 | 0.74 | 7.75 | 0.16 |
| 021E | Locke Street South (12-inch siphon) | 7/15/2014 16:15 | 7/15/2014 16:20 | 2,895 | 0.08 | 1.21 | 0.74 | 7.75 | 0.16 |
| 021H | Winter and Hale | 7/15/2014 15:50 | 7/15/2014 16:20 | 303,154 | 0.50 | 1.21 | 0.74 | 7.75 | 0.16 |
| 032 | Bradford Avenue | 7/15/2014 15:50 | 7/15/2014 16:20 | 437,803 | 0.50 | 1.21 | 0.74 | 7.75 | 0.16 |
| 034 | Middlesex Street | 7/15/2014 15:50 | 7/15/2014 16:20 | 261,660 | 0.50 | 1.21 | 0.74 | 7.75 | 0.16 |
| 039 | South Webster Street | 7/15/2014 15:50 | 7/15/2014 16:30 | 16,528 | 0.67 | 1.21 | 0.74 | 7.75 | 0.16 |
| 021A | Middle Siphon | 7/15/2014 15:50 | 7/15/2014 16:35 | 415,195 | 0.75 | 1.21 | 0.74 | 7.75 | 0.16 |
| 024 | Upper siphon | 7/15/2014 15:50 | 7/15/2014 16:55 | 2,901,914 | 1.08 | 1.21 | 0.74 | 7.75 | 0.16 |
| 013 | Lower Siphon | 7/15/2014 16:05 | 7/15/2014 17:40 | 475,652 | 1.58 | 1.21 | 0.74 | 7.75 | 0.16 |
| 021F | Middle Barrel Radio Market | 7/15/2014 15:50 | 7/15/2014 18:10 | 430,814 | 2.33 | 1.21 | 0.74 | 7.75 | 0.16 |
| 021D | Locke Street South (12-inch siphon) | 7/15/2014 15:45 | 7/15/2014 23:55 | 324,104 | 8.17 | 1.21 | 0.74 | 7.75 | 0.16 |
| Storm Total | | | | 6,035,341 | | | | | |
| 021D | Locke Street South (12-inch siphon) | 7/16/2014 0:00 | 7/16/2014 7:05 | 129,556 | 7.08 | 1.21 | 0.74 | 7.75 | 0.16 |
| 021D | Locke Street South (12-inch siphon) | 7/27/2014 11:25 | 7/27/2014 11:35 | 2,021 | 0.17 | 0.26 | 0.05 | 3.00 | 0.09 |
| 021F | Middle Barrel Radio Market | 7/27/2014 11:30 | 7/27/2014 11:35 | 3,400 | 0.08 | 0.26 | 0.05 | 3.00 | 0.09 |
| Storm Total | | | | 134,978 | | | | | |

Appendix B CSO FLOW METER SUMMARY 2014

QA/QC flow
Assessmnt

| NPDES ID | CSO Identification | Start Date Time | End Date Time | Total Vol (gals.)/event | CSO Duration (hr.) | Rain Total (in.) | Peak Hour Depth Intensity (in./hr.) | Storm Duration (hr.) | Daily Avg. Intensity (in./hr.) |
|--------------------|-------------------------------------|-----------------|-----------------|-------------------------|--------------------|------------------|-------------------------------------|----------------------|--------------------------------|
| 021G | Winter street | 7/28/2014 17:25 | 7/28/2014 17:35 | 59,075 | 0.17 | 0.89 | 0.24 | 11.25 | 0.08 |
| 021A | Middle Siphon | 7/28/2014 17:30 | 7/28/2014 17:40 | 35,587 | 0.17 | 0.89 | 0.24 | 11.25 | 0.08 |
| 032 | Bradford Avenue | 7/28/2014 17:25 | 7/28/2014 17:40 | 99,952 | 0.25 | 0.89 | 0.24 | 11.25 | 0.08 |
| 034 | Middlesex Street | 7/28/2014 17:25 | 7/28/2014 17:40 | 55,248 | 0.25 | 0.89 | 0.24 | 11.25 | 0.08 |
| 040 | Bethany Avenue | 7/28/2014 17:25 | 7/28/2014 17:40 | 51,515 | 0.25 | 0.89 | 0.24 | 11.25 | 0.08 |
| 041 | Chestnut Street | 7/28/2014 17:25 | 7/28/2014 17:40 | 21,985 | 0.25 | 0.89 | 0.24 | 11.25 | 0.08 |
| 021H | Winter and Hale | 7/28/2014 17:30 | 7/28/2014 17:45 | 72,758 | 0.25 | 0.89 | 0.24 | 11.25 | 0.08 |
| 024 | Upper siphon | 7/28/2014 17:35 | 7/28/2014 17:45 | 114,933 | 0.17 | 0.89 | 0.24 | 11.25 | 0.08 |
| 039 | South Webster Street | 7/28/2014 17:40 | 7/28/2014 17:45 | 5,429 | 0.08 | 0.89 | 0.24 | 11.25 | 0.08 |
| 021D | Locke Street South (12-inch siphon) | 7/28/2014 9:30 | 7/28/2014 17:55 | 76,157 | 8.42 | 0.89 | 0.24 | 11.25 | 0.08 |
| 021F | Middle Barrel Radio Market | 7/28/2014 9:40 | 7/28/2014 17:55 | 144,228 | 8.25 | 0.89 | 0.24 | 11.25 | 0.08 |
| Storm Total | | | | 736,868 | | | | | |
| 039 | South Webster Street | 8/1/2014 16:30 | 8/1/2014 0:00 | 13,676 | 0.08 | 0.93 | 0.56 | 3.75 | 0.25 |
| 038 | High Street | 8/1/2014 16:25 | 8/1/2014 16:25 | 6,332 | 0.08 | 0.93 | 0.56 | 3.75 | 0.25 |
| 021B | Emerson Street | 8/1/2014 16:25 | 8/1/2014 16:30 | 42,592 | 0.08 | 0.93 | 0.56 | 3.75 | 0.25 |
| 021G | Winter street | 8/1/2014 16:25 | 8/1/2014 16:35 | 136,025 | 0.17 | 0.93 | 0.56 | 3.75 | 0.25 |
| 021E | Locke Street South (18-inch siphon) | | 8/1/2014 16:40 | 2,294 | 0.08 | 0.93 | 0.56 | 3.75 | 0.25 |
| 040 | Bethany Avenue | 8/1/2014 16:20 | 8/1/2014 16:40 | 123,043 | 0.33 | 0.93 | 0.56 | 3.75 | 0.25 |
| 041 | Chestnut Street | 8/1/2014 16:20 | 8/1/2014 16:40 | 38,016 | 0.33 | 0.93 | 0.56 | 3.75 | 0.25 |
| 021H | Winter and Hale | 8/1/2014 16:15 | 8/1/2014 16:45 | 187,490 | 0.50 | 0.93 | 0.56 | 3.75 | 0.25 |
| 032 | Bradford Avenue | 8/1/2014 13:30 | 8/1/2014 16:45 | 314,358 | 3.25 | 0.93 | 0.56 | 3.75 | 0.25 |
| 034 | Middlesex Street | 8/1/2014 16:25 | 8/1/2014 16:45 | 209,789 | 0.33 | 0.93 | 0.56 | 3.75 | 0.25 |
| 021D | Locke Street South (12-inch siphon) | 8/1/2014 16:10 | 8/1/2014 16:50 | 96,589 | 0.67 | 0.93 | 0.56 | 3.75 | 0.25 |
| 021F | Middle Barrel Radio Market | 8/1/2014 16:15 | 8/1/2014 16:50 | 245,634 | 0.58 | 0.93 | 0.56 | 3.75 | 0.25 |
| 024 | Upper siphon | 8/1/2014 16:25 | 8/1/2014 16:50 | 1,498,018 | 0.42 | 0.93 | 0.56 | 3.75 | 0.25 |
| 021A | Middle Siphon | 8/1/2014 16:25 | 8/1/2014 17:00 | 388,975 | 0.58 | 0.93 | 0.56 | 3.75 | 0.25 |
| Storm Total | | | | 3,302,830 | | | | | |
| 038 | High Street | 8/13/2014 13:20 | 8/13/2014 13:30 | 20,766 | 0.17 | 1.71 | 0.14 | 16.25 | 0.11 |
| 021G | Winter street | | 8/13/2014 18:10 | 563 | 0.08 | 1.71 | 0.14 | 16.25 | 0.11 |
| 021H | Winter and Hale | 8/13/2014 13:55 | 8/13/2014 19:15 | 18,188 | 5.33 | 1.71 | 0.14 | 16.25 | 0.11 |
| 034 | Middlesex Street | 8/13/2014 13:50 | 8/13/2014 19:15 | 26,924 | 5.42 | 1.71 | 0.14 | 16.25 | 0.11 |
| 040 | Bethany Avenue | 8/13/2014 13:20 | 8/13/2014 19:15 | 26,754 | 5.92 | 1.71 | 0.14 | 16.25 | 0.11 |
| 041 | Chestnut Street | 8/13/2014 13:50 | 8/13/2014 19:15 | 13,333 | 5.42 | 1.71 | 0.14 | 16.25 | 0.11 |
| 032 | Bradford Avenue | 8/13/2014 13:50 | 8/13/2014 19:20 | 40,206 | 5.50 | 1.71 | 0.14 | 16.25 | 0.11 |
| 021A | Middle Siphon | 8/13/2014 19:10 | 8/13/2014 19:25 | 14,352 | 0.25 | 1.71 | 0.14 | 16.25 | 0.11 |
| 039 | South Webster Street | 8/13/2014 13:55 | 8/13/2014 19:25 | 10,862 | 5.50 | 1.71 | 0.14 | 16.25 | 0.11 |
| 021F | Middle Barrel Radio Market | 8/13/2014 13:30 | 8/13/2014 19:30 | 292,760 | 6.00 | 1.71 | 0.14 | 16.25 | 0.11 |
| 021D | Locke Street South (12-inch siphon) | 8/13/2014 6:30 | 8/13/2014 19:35 | 132,120 | 13.08 | 1.71 | 0.14 | 16.25 | 0.11 |
| 013 | Lower Siphon | 8/13/2014 19:15 | 8/13/2014 20:05 | 477,279 | 0.83 | 1.71 | 0.14 | 16.25 | 0.11 |
| 021D | Locke Street South (12-inch siphon) | 8/31/2014 19:50 | 8/31/2014 19:55 | 784 | 0.08 | 0.26 | 0.08 | 6.25 | 0.04 |
| Storm Total | | | | 1,074,892 | | | | | |

Appendix B CSO FLOW METER SUMMARY 2014

QA/QC flow
Assessmnt

| NPDES ID | CSO Identification | Start Date Time | End Date Time | Total Vol (gals.)/event | CSO Duration (hr.) | Rain Total (in.) | Peak Hour Depth Intensity (in./hr.) | Storm Duration (hr.) | Daily Avg. Intensity (in./hr.) |
|--------------------|-------------------------------------|------------------|------------------|-------------------------|--------------------|------------------|-------------------------------------|----------------------|--------------------------------|
| 038 | High Street | 9/2/2014 14:25 | 9/2/2014 14:30 | 1,008 | 0.08 | 0.29 | 0.27 | 0.75 | 0.39 |
| 021G | Winter street | 9/2/2014 14:35 | 9/2/2014 14:40 | 112,036 | 0.08 | 0.29 | 0.27 | 0.75 | 0.39 |
| 032 | Bradford Avenue | 9/2/2014 14:30 | 9/2/2014 14:40 | 176,887 | 0.17 | 0.29 | 0.27 | 0.75 | 0.39 |
| 034 | Middlesex Street | 9/2/2014 14:30 | 9/2/2014 14:40 | 126,774 | 0.17 | 0.29 | 0.27 | 0.75 | 0.39 |
| 040 | Bethany Avenue | 9/2/2014 14:25 | 9/2/2014 14:40 | 91,280 | 0.25 | 0.29 | 0.27 | 0.75 | 0.39 |
| 041 | Chestnut Street | 9/2/2014 14:30 | 9/2/2014 14:45 | 34,844 | 0.25 | 0.29 | 0.27 | 0.75 | 0.39 |
| 021E | Locke Street South (18-inch siphon) | 9/2/2014 14:50 | 9/2/2014 14:50 | 2,044 | 0.08 | 0.29 | 0.27 | 0.75 | 0.39 |
| 024 | Upper siphon | 9/2/2014 14:35 | 9/2/2014 14:50 | 431,851 | 0.25 | 0.29 | 0.27 | 0.75 | 0.39 |
| 039 | South Webster Street | 9/2/2014 14:35 | 9/2/2014 14:50 | 1,600 | 0.25 | 0.29 | 0.27 | 0.75 | 0.39 |
| 021A | Middle Siphon | 9/2/2014 14:35 | 9/2/2014 14:55 | 132,091 | 0.33 | 0.29 | 0.27 | 0.75 | 0.39 |
| 021H | Winter and Hale | 9/2/2014 14:30 | 9/2/2014 14:55 | 166,309 | 0.42 | 0.29 | 0.27 | 0.75 | 0.39 |
| 021D | Locke Street South (12-inch siphon) | 9/2/2014 14:25 | 9/2/2014 15:00 | 82,793 | 0.58 | 0.29 | 0.27 | 0.75 | 0.39 |
| 021F | Middle Barrel Radio Market | 9/2/2014 14:30 | 9/2/2014 15:00 | 214,537 | 0.50 | 0.29 | 0.27 | 0.75 | 0.39 |
| 013 | Lower Siphon | 9/2/2014 14:50 | 9/2/2014 15:40 | 369,642 | 0.83 | 0.29 | 0.27 | 0.75 | 0.39 |
| Storm Total | | | | 1,943,696 | | | | | |
| 021D | Locke Street South (12-inch siphon) | 9/6/2014 16:20 | 9/6/2014 16:45 | 11,788 | 0.42 | 0.29 | 0.01 | 12.50 | 0.02 |
| 021F | Middle Barrel Radio Market | 9/6/2014 16:25 | 9/6/2014 16:50 | 12,912 | 0.42 | 0.29 | 0.01 | 12.50 | 0.02 |
| Storm Total | | | | 24,700 | | | | | |
| 021G | Winter street | | 9/21/2014 5:05 | 11,331 | 0.08 | 0.36 | 0.18 | 2.75 | 0.13 |
| 021A | Middle Siphon | 9/21/2014 5:05 | 9/21/2014 5:10 | 11,602 | 0.08 | 0.36 | 0.18 | 2.75 | 0.13 |
| 021E | Locke Street South (18-inch siphon) | 9/21/2014 5:10 | 9/21/2014 5:10 | 1,147 | 0.08 | 0.36 | 0.18 | 2.75 | 0.13 |
| 032 | Bradford Avenue | 9/21/2014 5:00 | 9/21/2014 5:10 | 71,069 | 0.17 | 0.36 | 0.18 | 2.75 | 0.13 |
| 034 | Middlesex Street | 9/21/2014 5:00 | 9/21/2014 5:10 | 38,110 | 0.17 | 0.36 | 0.18 | 2.75 | 0.13 |
| 040 | Bethany Avenue | 9/21/2014 4:45 | 9/21/2014 5:10 | 36,766 | 0.42 | 0.36 | 0.18 | 2.75 | 0.13 |
| 041 | Chestnut Street | 9/21/2014 5:00 | 9/21/2014 5:10 | 17,836 | 0.17 | 0.36 | 0.18 | 2.75 | 0.13 |
| 021H | Winter and Hale | 9/21/2014 4:55 | 9/21/2014 5:15 | 48,967 | 0.33 | 0.36 | 0.18 | 2.75 | 0.13 |
| 024 | Upper siphon | 9/21/2014 5:00 | 9/21/2014 5:15 | 9,441 | 0.25 | 0.36 | 0.18 | 2.75 | 0.13 |
| 039 | South Webster Street | 9/21/2014 5:00 | 9/21/2014 5:15 | 12,573 | 0.25 | 0.36 | 0.18 | 2.75 | 0.13 |
| 021F | Middle Barrel Radio Market | 9/21/2014 4:50 | 9/21/2014 5:25 | 101,167 | 0.58 | 0.36 | 0.18 | 2.75 | 0.13 |
| 021D | Locke Street South (12-inch siphon) | 9/21/2014 4:45 | 9/21/2014 5:30 | 38,764 | 0.75 | 0.36 | 0.18 | 2.75 | 0.13 |
| Storm Total | | | | 398,774 | | | | | |
| 021D | Locke Street South (12-inch siphon) | 10/1/2014 13:40 | 10/1/2014 14:35 | 11,922 | 0.92 | 0.75 | 0.06 | 21.00 | 0.04 |
| Storm Total | | | | 11,922 | | | | | |
| 021D | Locke Street South (12-inch siphon) | 10/4/2014 21:00 | 10/4/2014 21:00 | 935 | 0.08 | 0.10 | 0.03 | 5.50 | 0.02 |
| Storm Total | | | | 935 | | | | | |
| 021F | Middle Barrel Radio Market | 10/16/2014 19:40 | 10/16/2014 19:55 | 12,798 | 0.25 | 0.52 | 0.04 | 11.50 | 0.05 |
| 021D | Locke Street South (12-inch siphon) | 10/16/2014 15:00 | 10/16/2014 20:05 | 17,584 | 5.08 | 0.52 | 0.04 | 11.50 | 0.05 |
| Storm Total | | | | 30,382 | | | | | |
| 021F | Middle Barrel Radio Market | 10/22/2014 22:20 | 10/22/2014 22:40 | 15,077 | 0.33 | 3.80 | 0.19 | 33.75 | 0.11 |
| 021D | Locke Street South (12-inch siphon) | 10/22/2014 22:05 | 10/22/2014 22:50 | 20,629 | 0.75 | 3.80 | 0.19 | 33.75 | 0.11 |
| Storm Total | | | | 35,706 | | | | | |

Appendix B CSO FLOW METER SUMMARY 2014

QA/QC flow
Assessmnt

| NPDES ID | CSO Identification | Start Date Time | End Date Time | Total Vol (gals.)/event | CSO Duration (hr.) | Rain Total (in.) | Peak Hour Depth Intensity (in./hr.) | Storm Duration (hr.) | Daily Avg. Intensity (in./hr.) |
|--------------------|-------------------------------------|------------------|------------------|-------------------------|--------------------|------------------|-------------------------------------|----------------------|--------------------------------|
| 021G | Winter street | 10/23/2014 3:00 | 10/23/2014 3:05 | 8,498 | 0.08 | 0.11 | 0.03 | 10.50 | 0.01 |
| 021E | Locke Street South (18-inch siphon) | 10/23/2014 3:05 | 10/23/2014 3:10 | 2,605 | 0.08 | 0.11 | 0.03 | 10.50 | 0.01 |
| 040 | Bethany Avenue | 10/23/2014 0:30 | 10/23/2014 7:05 | 27,781 | 6.58 | 0.11 | 0.03 | 10.50 | 0.01 |
| 021H | Winter and Hale | 10/23/2014 0:45 | 10/23/2014 7:20 | 79,640 | 6.58 | 0.11 | 0.03 | 10.50 | 0.01 |
| 041 | Chestnut Street | 10/23/2014 0:35 | 10/23/2014 8:50 | 58,018 | 8.25 | 0.11 | 0.03 | 10.50 | 0.01 |
| 034 | Middlesex Street | 10/23/2014 0:40 | 10/23/2014 9:10 | 85,736 | 8.50 | 0.11 | 0.03 | 10.50 | 0.01 |
| 032 | Bradford Avenue | 10/23/2014 0:40 | 10/23/2014 9:15 | 105,722 | 8.58 | 0.11 | 0.03 | 10.50 | 0.01 |
| 039 | South Webster Street | 10/23/2014 0:40 | 10/23/2014 9:20 | 69,859 | 8.67 | 0.11 | 0.03 | 10.50 | 0.01 |
| 024 | Upper siphon | 10/23/2014 3:05 | 10/23/2014 9:25 | 338,072 | 6.33 | 0.11 | 0.03 | 10.50 | 0.01 |
| 021A | Middle Siphon | 10/23/2014 3:00 | 10/23/2014 9:35 | 297,774 | 6.58 | 0.11 | 0.03 | 10.50 | 0.01 |
| 021F | Middle Barrel Radio Market | 10/23/2014 0:40 | 10/23/2014 10:05 | 884,478 | 9.42 | 0.11 | 0.03 | 10.50 | 0.01 |
| 013 | Lower Siphon | 10/23/2014 3:05 | 10/23/2014 10:55 | 1,912,068 | 7.83 | 0.11 | 0.03 | 10.50 | 0.01 |
| 021D | Locke Street South (12-inch siphon) | 10/23/2014 0:30 | 10/23/2014 12:00 | 394,202 | 11.50 | 0.11 | 0.03 | 10.50 | 0.01 |
| Storm Total | | | | 4,264,454 | | | | | |
| 021D | Locke Street South (12-inch siphon) | 11/2/2014 11:20 | 11/2/2014 11:50 | 4,580 | 0.50 | 0.25 | 0.04 | 3.50 | 0.07 |
| Storm Total | | | | 4,580 | | | | | |
| 021D | Locke Street South (12-inch siphon) | 11/6/2014 19:45 | 11/6/2014 19:45 | 4,050 | 0.08 | 0.42 | 0.03 | 18.75 | 0.02 |
| Storm Total | | | | 4,050 | | | | | |
| 021F | Middle Barrel Radio Market | 11/17/2014 16:40 | 11/17/2014 16:50 | 4,641 | 0.17 | 1.14 | 0.07 | 18.00 | 0.06 |
| 021D | Locke Street South (12-inch siphon) | 11/17/2014 8:20 | 11/17/2014 17:15 | 36,297 | 8.92 | 1.14 | 0.07 | 18.00 | 0.06 |
| Storm Total | | | | 40,938 | | | | | |
| 021F | Middle Barrel Radio Market | 12/3/2014 2:05 | 12/3/2014 2:40 | 31,191 | | 0.48 | 0.06 | 11.00 | 0.04 |
| 021D | Locke Street South (12-inch siphon) | 12/3/2014 1:50 | 12/3/2014 3:35 | 26,960 | 1.75 | 0.48 | 0.06 | 11.00 | 0.04 |
| Storm Total | | | | 58,150 | | | | | |
| 021D | Locke Street South (12-inch siphon) | 12/6/2014 21:55 | 12/6/2014 22:20 | 1,806 | 0.42 | 1.04 | 0.03 | 26.50 | 0.04 |
| Storm Total | | | | 1,806 | | | | | |

Appendix B CSO FLOW METER SUMMARY 2014

QA/QC flow
Assessmnt

| NPDES ID | CSO Identification | Start Date Time | End Date Time | Total Vol (gals.)/event | CSO Duration (hr.) | Rain Total (in.) | Peak Hour Depth Intensity (in./hr.) | Storm Duration (hr.) | Daily Avg. Intensity (in./hr.) |
|--------------------|-------------------------------------|------------------|------------------|-------------------------|--------------------|------------------|-------------------------------------|----------------------|--------------------------------|
| 032 | Bradford Avenue | 12/9/2014 14:55 | 12/9/2014 16:15 | 12,022.0 | 1.33 | 3.33 | 0.19 | 23.25 | 0.14 |
| 021E | Locke Street South (18-inch siphon) | 12/9/2014 14:55 | 12/9/2014 16:25 | 11,337 | 1.50 | 3.33 | 0.19 | 23.25 | 0.14 |
| 034 | Middlesex Street | 12/9/2014 13:05 | 12/9/2014 18:15 | 509,248 | 5.17 | 3.33 | 0.19 | 23.25 | 0.14 |
| 041 | Chestnut Street | 12/9/2014 12:15 | 12/9/2014 18:15 | 195,331 | 6.00 | 3.33 | 0.19 | 23.25 | 0.14 |
| 021H | Winter and Hale | 12/9/2014 13:15 | 12/9/2014 18:20 | 168,687 | 5.08 | 3.33 | 0.19 | 23.25 | 0.14 |
| 024 | Upper siphon | 12/9/2014 13:25 | 12/9/2014 18:30 | 1,515,139 | 5.08 | 3.33 | 0.19 | 23.25 | 0.14 |
| 021A | Middle Siphon | 12/9/2014 12:55 | 12/9/2014 19:40 | 6,682,543 | 6.75 | 3.33 | 0.19 | 23.25 | 0.14 |
| 013 | Lower Siphon | 12/9/2014 12:50 | 12/9/2014 22:10 | 4,951,160 | 9.33 | 3.33 | 0.19 | 23.25 | 0.14 |
| 021F | Middle Barrel Radio Market | 12/9/2014 10:50 | 12/9/2014 22:20 | 1,452,661 | 11.50 | 3.33 | 0.19 | 23.25 | 0.14 |
| 039 | South Webster Street | 12/9/2014 12:05 | 12/9/2014 22:35 | 635,761 | 10.50 | 3.33 | 0.19 | 23.25 | 0.14 |
| 021D | Locke Street South (12-inch siphon) | 12/9/2014 10:25 | 12/9/2014 23:15 | 484,522 | 12.83 | 3.33 | 0.19 | 23.25 | 0.14 |
| Storm Total | | | | 16,618,411 | | | | | |
| 021F | Middle Barrel Radio Market | 12/10/2014 14:30 | 12/10/2014 15:20 | 36,511 | 0.83 | 0.23 | 0.03 | 5.00 | 0.05 |
| 021D | Locke Street South (12-inch siphon) | 12/10/2014 14:15 | 12/10/2014 15:30 | 23,592 | 1.25 | 0.23 | 0.03 | 5.00 | 0.05 |
| 021F | Middle Barrel Radio Market | 12/17/2014 5:30 | 12/17/2014 5:35 | 893 | 0.08 | 0.04 | 7.75 | 0.05 | 0.05 |
| 021D | Locke Street South (12-inch siphon) | 12/17/2014 5:10 | 12/17/2014 5:45 | 8,313 | 0.58 | 0.40 | 0.04 | 7.75 | 0.05 |
| Storm Total | | | | 69,310 | | | | | |
| 021D | Locke Street South (12-inch siphon) | 12/23/2014 18:30 | 12/24/2014 20:00 | 42,143 | 25.50 | 1.04 | 0.06 | 42.50 | 0.02 |
| 021D | Locke Street South (12-inch siphon) | 12/25/2014 7:50 | 12/25/2014 8:15 | 3,924 | 0.42 | 0.13 | 0.03 | 2.75 | 0.05 |
| Storm Total | | | | 46,067 | | | | | |

Appendix C CSO FLOW METER SUMMARY PER OUTFALL 2014

CSO Summary/Outfall

| | |
|-----------------------|------------------------|
| From Date | To Date |
| 3/20/2014 1:00 | 12/31/2014 0:00 |

| CSO Name | CSO ID | CSO TOTAL TO DATE |
|-------------------------------------|-----------------------|--------------------------|
| Lower Siphon | 013 | 8,744,270 |
| Middle Siphon | 021A | 9,193,993 |
| Locke Street South (12-inch siphon) | 021B | 64,698 |
| Locke Street South (18-inch siphon) | 021D | 2,581,701 |
| Middle Barrel Radio Market | 021E | 24,905 |
| Winter street | 021F | 7,796,942 |
| Winter and Hale | 021G | 601,543 |
| Upper siphon | 021H | 1,258,304 |
| Bradford Avenue | 024 | 7,302,109 |
| Middlesex Street | 032 | 1,927,480 |
| Middlesex Street | 034 | 1,547,514 |
| High Street | 038 | 35,078 |
| South Webster Street | 039 | 860,624 |
| Bethany Avenue | 040 | 660,768 |
| Chestnut Street | 041 | 607,135 |
| | System Total : | 43,207,063 |

APPENDIX D: CALENDAR YEAR 2014 RAINFALL DATA

| Storm Date | Rain Total (in.) | Peak Hour Depth Intensity (in./hr.) | Duration (hours) | Daily Avg. Intensity (in./hr.) |
|-------------------|-------------------------|--|-------------------------|---------------------------------------|
| 1/2/2014 | 0.32 | 0.05 | 30.50 | 0.01 |
| 1/5/2014 | 0.02 | 0.02 | 0.50 | 0.04 |
| 1/6/2014 | 0.60 | 0.15 | 23.00 | 0.03 |
| 1/10/2014 | 0.09 | 0.03 | 6.75 | 0.01 |
| 1/11/2014 | 0.08 | 0.03 | 4.50 | 0.02 |
| 1/12/2014 | 0.30 | 0.08 | 9.25 | 0.03 |
| 1/14/2014 | 0.78 | 0.12 | 14.25 | 0.05 |
| 1/18/2014 | 0.63 | 0.16 | 25.25 | 0.02 |
| 1/27/2014 | 0.01 | 0.01 | 0.25 | 0.04 |
| 2/2/2014 | 0.08 | 0.06 | 1.75 | 0.05 |
| 2/3/2014 | 0.01 | 0.01 | 0.25 | 0.04 |
| 2/5/2014 | 0.96 | 0.18 | 20.50 | 0.05 |
| 2/10/2014 | 0.03 | 0.02 | 1.25 | 0.02 |
| 2/13/2014 | 1.46 | 0.23 | 100.00 | 0.01 |
| 2/15/2014 | 0.24 | 0.05 | 9.50 | 0.03 |
| 2/18/2014 | 0.56 | 0.14 | 16.50 | 0.03 |
| 2/19/2014 | 0.20 | 0.14 | 2.00 | 0.10 |
| 2/20/2014 | 0.80 | 0.16 | 21.50 | 0.04 |
| 3/11/2014 | 0.01 | 0.01 | 0.50 | 0.02 |
| 3/12/2014 | 0.52 | 0.14 | 18.75 | 0.03 |
| 3/15/2014 | 0.01 | 0.01 | 0.25 | 0.04 |
| 3/20/2014 | 0.58 | 0.19 | 5.75 | 0.10 |
| 3/28/2014 | 0.04 | 0.02 | 2.00 | 0.02 |
| 3/29/2014 | 3.46 | 0.37 | 43.50 | 0.08 |
| 4/4/2014 | 0.41 | 0.11 | 7.25 | 0.06 |
| 4/7/2014 | 0.58 | 0.19 | 5.75 | 0.10 |
| 4/11/2014 | 0.07 | 0.03 | 8.25 | 0.01 |
| 4/13/2014 | 0.01 | 0.01 | 0.25 | 0.04 |
| 4/15/2014 | 0.74 | 0.15 | 15.25 | 0.05 |
| 4/22/2014 | 0.01 | 0.01 | 2.25 | 0.01 |
| 4/23/2014 | 0.58 | 0.25 | 3.25 | 0.18 |
| 4/26/2014 | 0.20 | 0.06 | 4.75 | 0.04 |
| 4/27/2014 | 0.10 | 0.05 | 9.50 | 0.03 |
| 4/30/2014 | 0.03 | 0.01 | 7.75 | 0.00 |
| 5/1/2014 | 0.86 | 0.01 | 15.25 | 0.06 |
| 5/2/2014 | 0.18 | 0.14 | 6.00 | 0.03 |
| 5/10/2014 | 0.08 | 0.04 | 2.25 | 0.04 |
| 5/16/2014 | 0.21 | 0.13 | 6.50 | 0.03 |
| 5/17/2014 | 0.57 | 0.31 | 2.75 | 0.21 |
| 5/19/2014 | 0.14 | 0.05 | 4.25 | 0.03 |
| 5/22/2014 | 0.07 | 0.03 | 13.00 | 0.01 |
| 5/24/2014 | 0.06 | 0.06 | 1.25 | 0.09 |
| 5/27/2014 | 0.52 | 0.17 | 15.25 | 0.03 |
| 6/4/2014 | 0.01 | 0.01 | 0.25 | 0.04 |

APPENDIX D: CALENDAR YEAR 2014 RAINFALL DATA

| Storm Date | Rain Total (in.) | Peak Hour Depth Intensity (in./hr.) | Duration (hours) | Daily Avg. Intensity (in./hr.) |
|-------------------|-------------------------|--|-------------------------|---------------------------------------|
| 6/5/2014 | 0.41 | 0.10 | 9.50 | 0.04 |
| 6/6/2014 | 0.01 | 0.01 | 0.25 | 0.04 |
| 6/10/2014 | 0.01 | 0.01 | 0.25 | 0.04 |
| 6/13/2014 | 0.70 | 0.20 | 15.25 | 0.05 |
| 6/18/2014 | 0.01 | 0.01 | 0.25 | 0.04 |
| 6/24/2014 | 0.05 | 0.05 | 0.25 | 0.20 |
| 6/26/2014 | 0.49 | 0.25 | 4.75 | 0.10 |
| 7/2/2014 | 0.01 | 0.01 | 0.25 | 0.04 |
| 7/3/2014 | 0.72 | 0.32 | 7.00 | 0.10 |
| 7/4/2014 | 1.70 | 0.08 | 19.25 | 0.09 |
| 7/7/2014 | 0.23 | 0.06 | 4.50 | 0.05 |
| 7/10/2014 | 0.13 | 0.12 | 0.50 | 0.26 |
| 7/15/2014 | 1.21 | 0.74 | 7.75 | 0.16 |
| 7/23/2014 | 0.09 | 0.03 | 1.00 | 0.09 |
| 7/27/2014 | 0.26 | 0.05 | 3.00 | 0.09 |
| 7/28/2014 | 0.89 | 0.24 | 11.25 | 0.08 |
| 7/30/2014 | 0.01 | 0.01 | 0.25 | 0.04 |
| 7/31/2014 | 0.93 | 0.56 | 3.75 | 0.25 |
| 8/1/2014 | 0.01 | 0.01 | 0.25 | 0.04 |
| 8/7/2014 | 0.01 | 0.01 | 0.25 | 0.04 |
| 8/13/2014 | 1.71 | 0.14 | 16.25 | 0.11 |
| 8/22/2014 | 0.36 | 0.13 | 4.50 | 0.08 |
| 8/31/2014 | 0.26 | 0.08 | 6.25 | 0.04 |
| 9/2/2014 | 0.29 | 0.27 | 0.75 | 0.39 |
| 9/6/2014 | 0.29 | 0.01 | 12.50 | 0.02 |
| 9/13/2014 | 0.18 | 0.03 | 4.25 | 0.04 |
| 9/16/2014 | 0.02 | 0.01 | 1.25 | 0.02 |
| 9/21/2014 | 0.36 | 0.18 | 2.75 | 0.13 |
| 9/29/2014 | 0.03 | 0.01 | 6.00 | 0.01 |
| 9/30/2014 | 0.04 | 0.01 | 4.25 | 0.01 |
| 10/1/2014 | 0.75 | 0.06 | 21.00 | 0.04 |
| 10/3/2014 | 0.03 | 0.01 | 4.25 | 0.01 |
| 10/4/2014 | 0.10 | 0.03 | 5.50 | 0.02 |
| 10/8/2014 | 0.05 | 0.02 | 2.50 | 0.02 |
| 10/11/2014 | 0.18 | 0.02 | 3.50 | 0.05 |
| 10/16/2014 | 0.52 | 0.04 | 11.50 | 0.05 |
| 10/17/2014 | 0.01 | 0.04 | 0.25 | 0.04 |
| 10/18/2014 | 0.02 | 0.01 | 2.50 | 0.01 |
| 10/22/2014 | 3.80 | 0.19 | 33.75 | 0.11 |
| 10/23/2014 | 0.11 | 0.03 | 10.50 | 0.01 |
| 10/26/2014 | 0.01 | 0.04 | 0.25 | 0.04 |
| 10/29/2014 | 0.12 | 0.03 | 2.50 | 0.05 |
| 11/1/2014 | 0.44 | 0.03 | 9.25 | 0.05 |
| 11/2/2014 | 0.25 | 0.04 | 3.50 | 0.07 |

APPENDIX D: CALENDAR YEAR 2014 RAINFALL DATA

| Storm Date | Rain Total (in.) | Peak Hour Depth Intensity (in./hr.) | Duration (hours) | Daily Avg. Intensity (in./hr.) |
|-------------------|-------------------------|--|-------------------------|---------------------------------------|
| 11/6/2014 | 0.42 | 0.03 | 18.75 | 0.02 |
| 11/14/2014 | 0.19 | 0.07 | 7.75 | 0.02 |
| 11/17/2014 | 1.14 | 0.07 | 18.00 | 0.06 |
| 11/24/2014 | 0.35 | 0.04 | 7.50 | 0.05 |
| 11/26/2014 | 1.29 | 0.05 | 16.25 | 0.08 |
| 11/28/2014 | 0.05 | 0.01 | 7.25 | 0.01 |
| 12/2/2014 | 0.48 | 0.06 | 11.00 | 0.04 |
| 12/3/2014 | 0.01 | 0.04 | 0.25 | 0.04 |
| 12/6/2014 | 1.04 | 0.03 | 26.50 | 0.04 |
| 12/9/2014 | 3.33 | 0.19 | 23.25 | 0.14 |
| 12/10/2014 | 0.23 | 0.03 | 5.00 | 0.05 |
| 12/11/2014 | 0.03 | 0.02 | 4.75 | 0.04 |
| 12/17/2014 | 0.40 | 0.04 | 7.75 | 0.05 |
| 12/18/2014 | 0.03 | 0.01 | 2.00 | 0.02 |
| 12/22/2014 | 0.04 | 0.01 | 6.25 | 0.01 |
| 12/23/2014 | 1.04 | 0.06 | 42.50 | 0.02 |
| 12/25/2014 | 0.13 | 0.03 | 2.75 | 0.05 |
| 12/28/2014 | 0.06 | 0.02 | 2.00 | 0.03 |

Check 45.29

CHECK CSO SIGNAGE

| | | | |
|------------------------------|-----------|------------------------|-----------|
| Task No. | | Request Date | 4/22/2014 |
| Tenant | CITY WIDE | Request Time | 7:00:00AM |
| Assigned By | PJJ | Originator | PHIL |
| Assigned To | PAR | Telephone No. | |
| Scheduled Start Date | 4/22/2014 | Extension | |
| Scheduled Finish Date | 4/22/2014 | WO Type | PLANNED |
| Perform by Warranty | No | Completion Date | 4/24/2014 |
| Priority | 1.00 | Completion Time | |
| Expense Class | | Project Task | |
| Project ID | | | |

| <u>Craft</u> | <u>Estimated Crew Size</u> | <u>Estimated Labor Hours</u> |
|--------------|----------------------------|------------------------------|
| COLL-REG | 4.00 | 28.00 |

Equipment No. -

Equipment Description

Serial No.

Cost Center

General Ledger Code

Department

Location CITY WIDE

Sub-location 1 -

Sub-location 2 -

Sub-location 3 -

Reason for Outage _____

Must Be Down No

Estimated Down Time

Down Time

Safety Note

Comments

CHECK CSO STRUCTURES FOR SIGNAGE, REMOVE SIGNAGE FROM CLOSED STRUCTURES. ADDED SIGNS AT HIGH ST AND BROADWAY OUTFALL. ADDED SIGNS AT WINTER AND WINTER/HALE OUTFALL. REPLACED SIGNS AT MIDDLESEX ST. ADDED SIGN FOR BETHANY ST, ADDED SIGN FOR CHESTNUT ST. PREVIOUSY ADDED SIGN AT S. WEBSTER.

| <u>Equipment No. (Meter)</u> | <u>Meter Name</u> | <u>Meter Reading</u> |
|------------------------------|-------------------|----------------------|
| | | |

| Item No. | Equipment No. (Parts) | Item Description | Qty Required | Date Used | Qty Used |
|----------|-----------------------|------------------|--------------|-----------|----------|
| | | | | | |

List extra parts and comments here

| | | |
|--|--|--|
| | | |
| | | |
| | | |

| Employee Code | Equipment No. (Employee) | Work Date | First Name | Last Name | Regular Hours | Overtime Hours |
|---------------|--------------------------|-----------|------------|-----------|---------------|----------------|
| DWS | - | 4/22/2014 | DAVID | SHAW | 5.00 | |
| PR | - | 4/22/2014 | PEDRO | ROSARIO | 5.00 | |
| PR | - | 4/24/2014 | PEDRO | ROSARIO | 6.00 | |
| SAM | - | 4/22/2014 | SAMUEL | MARINEZ | 5.00 | |
| ZEB | - | 4/22/2014 | ZEBULUN | DAY | 5.00 | |
| ZEB | - | 4/24/2014 | ZEBULUN | DAY | 6.00 | |

Appendix F: Downstream Notification¹

| First Name | Last Name | Address | City | State | Postal Code | Tele # | DEPT | E-mail |
|------------|-------------|------------------------|--------------|-------|-------------|---------------------|-------------------------------|--|
| Robert | Desmaris | 62 Friend Street | Amesbury | MA | 01913 | 1-978-388-8127 | DPW Director | rob@amesburyma.gov |
| Jeff | Mason | | Amesbury | MA | 01913 | 978-388-0853 | Water System Manager | masonj@amesburyma.gov |
| Nihar | Mohanty | 1 Winter Street | Boston | MA | 02108-4746 | 1-978-694-3237 | Mass DEP | nihar.mohanty@state.ma.us |
| Joy | Hilton | 1 Congress St | Boston | MA | 02203 | (617) 918-1877 | EPA Region I | hilttoh.joy@epa.gov |
| Robert | O'Hanley | 183 Main Street | Groveland | MA | 01834 | (978) 372-3942 | Board of Health | health@grovelandma.com |
| Thomas | Cusick | 183 Main Street | Groveland | MA | 01834 | (978) 556-7200 x219 | Water/Sewer | Tcusick@grovelandma.com |
| Bonnie | Dufresne | 4 Summer Street | Haverhill | MA | 01830 | (978) 374-2325 | Board of Health | bdufresne@cityofhaverhill.com |
| Michael | Vets | 72 Coffin Avenue | Haverhill | MA | 01830 | (978) 374-2100 | Harbor Master | vetsm@comcast.net |
| Fred | Haffty | 40 South Porter Street | Haverhill | MA | 01835 | (978) 372-2382 | Haverhill WWTP | fhaffty@haverhillwater.com |
| Mike | Stankovich | 500 Primrose Street | Haverhill | MA | 01830 | (978) 374-2360 | Haverhill DPW Director | mstankovich@haverhillwater.com |
| Philip | Ryan | 40 South Porter Street | Haverhill | MA | 01835 | (978) 374-2383 | Senior Collection Operator | pryan@haverhillwater.com |
| Mr. | Richard | Spinale | Merrimac | MA | 01860 | | DPW Director | dpw@townofmerrimac.com |
| Eileen | Hurley | 2 School Street | Merrimac | MA | 01860 | 978-346-4066 | Board of Health | boh@townofmerrimac.com |
| Alba L. | Gouldthorpe | 25 High Road | Newbury | MA | 01951 | (978) 499-3898 | Board of Health | boardofhealth@townofnewbury.org |
| Don | Freeman | CDM Smith | | | | | | freemandb@cdmsmith.com |
| Neal | Campbell | CDM Smith | | | | | | campbellnw@cdmsmith.com |
| Robert | Ward | 40 South Porter Street | Haverhill | MA | 01835 | (978) 372-2382 | Haverhill WWTP | rward@haverhillwater.com |
| Fred | Haffty | 40 South Porter Street | Haverhill | MA | 01835 | (978) 372-2382 | Haverhill WWTP | fhaffty@haverhillwater.com |
| Philip | Ryan | 40 South Porter Street | Haverhill | MA | 01835 | (978) 372-2382 | Haverhill WWTP | pryan@haverhillwater.com |
| Robert | Bracey | 60 Pleasant Street | Newburyport | MA | 01950 | (978) 465-4410 | Director Board of Health | bbracey@cityofnewburyport.com |
| Paul | Hogg | PO Box 550 | Newburyport | MA | 01950 | (978) 462-3746 | Harbor Master | phogg@cityofnewburyport.com |
| Jamie | Tuccolo | 16A Perry Way | Newburyport | MA | 01950 | 1-978-417-1223 | Collection System Manager | jtuccolo@cityofnewburyport.com |
| Joseph | Dugan | | Newburyport | MA | 01950 | (978) 465-4461 | Newburyport Wastewater Pl | jdugan@cityofnewburyport.com |
| Andrea | Brouchu | P.O. Box 5072 | Salisbury | MA | 01952 | (978) 462-3430 | Board of Health | abrochu@salisburyma.gov |
| Jeff | Ingalls | P.O. 5221 | Salisbury | MA | 01952 | (978) 465-4058 | Sewer Treatment Plant | wwtp@salisburyma.gov |
| Donald | Levesque | 39 Lafayette Road | Salisbury | MA | 01952 | 978-463-0656 | Director Public Works | dlevesque@salisburyma.gov |
| Ray | Pike | 5 Beach Road | Salisbury | MA | 01952 | 978 499 0740 | Harbor Master | harbormaster@salisburyma.gov |
| Paul | Sevigny | 381 Main Street | West Newbury | MA | 01985 | (978) 363-1109 | Board of Health | psevigny@town.west-newbury.ma.us |
| Jeff | Kennedy | | | | | 978-465-3553 x320 | North Shore Shellfish Project | shellfish.newburyport@state.ma.us |
| | | | | | | | N. Shore Shellfish Project | shellfish.newburyport@state.ma.us |

1. Updated April 18, 2011
2. Updated November 2011
3. Updated March 15, 2012
4. Undated February 2013